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Parotid gland tumors. Results of retrospective analysis of 149 patients treated at the Clinical Department of Cranio-Maxillofacial Surgery, Clinic of Otolaryngology and Oncologic Laryngology of Military Institute of Medicine in Warsaw in years 2006–2016

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ABSTRACT:

Introduction: Salivary gland tumors are rare and comprise 3-10% of all tumors of the head and neck.

Materials and methods: Between 2006 and 2016, 149 patients with parotid gland tumors were treated in our department. Our report is based on medical records, histopathological examinations, and surgery reports.

Results: We found 126 benign and 23 malignant tumors, and both tumor types were seen more frequently in men. The mean age of all patients was 58.3 years; it was 65.5 years for patients with malignant tumors and 56.9 years for those with benign tumors. Among the analyzed patients, the peak incidence was seen in the age range of 60-69 years. Moreover, this age range was approximately the same for all tumors and benign tumors, whereas for malignant tumors it was 70-79 years. Benign tumors were significantly more frequent, and comprised 84.56% of all tumors. The most common benign tumors were pleomorphic adenoma and adenolymphoma, accounting for 93.66% of cases. The most common malignant tumors were as follows: polymorphous low-grade adenocarcinoma (26.07%), NOS adenocarcinoma (13.04%), and acinic cell carcinoma (13.04%). The most common treatment modality was standalone surgery.

Conclusions: Our retrospective analysis is in line with previous national and international studies.

KEYWORDS: parotid gland tumors, pleomorphic adenoma, cystadenocarcinoma

INTRODUCTION

Salivary gland tumors are rare and comprise 3-10% of all tumors of the head and neck. [2,7,9,11]. They can originate from large salivary glands, i.e., the parotid, submandibular, and sublingual glands, and from small salivary glands located in the submucosa of the oral cavity. Based on the available literature, approximately 64-80% of all salivary gland tumors are localized in the parotid glands [1,2]. The majority of them are benign, with pleomorphic adenoma and adenolymphoma being most common [2]. The risk of malignant transformation increases with a decreasing size of salivary glands. However, malignant tumors are found most commonly in the parotid glands, with mucoepidermoid carcinoma, acinic cell carcinoma, and cystadenocarcinoma being most frequent [2,3]. The mean age at diagnosis is 45-50 years [5,9]. The gender distribution of these tumors is variable [6,8,10,12]. The mainstay of treatment is surgery [4].

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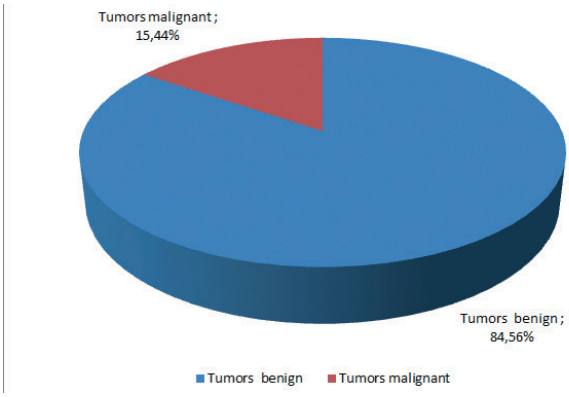

Fig. 1. Frequency of benign and malignant parotid gland tumors.

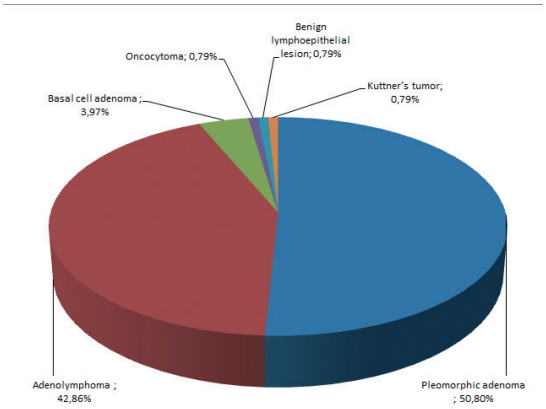

Fig. 2. Histological structure of benign parotid gland tumors.

AIM OF THE STUDY

The aim of the study was to analyze the prevalence of parotid gland tumors with respect to age, gender, tumor type – benign or malignant, histological structure, and method of treatment.

MATERIALS

We analyzed 149 patients who were treated in our department between 2006 and 2016.

METHODS

Between 2006 and 2016, we treated 149 patients with parotid gland tumors. There were 126 benign and 26 malignant cases.

Our report is based on medical records, histopathological examinations, and surgery reports.

Tumors were slightly more frequent in men (51.68%), including benign (51.59%) and malignant (52.17%) tumors (Table 1).

The mean age of patients with benign tumors was 56.9 years, and the mean age of patients with malignant tumors was slightly higher (65.5 years).

Among the analyzed patients, the peak incidence was in the range of 60-69 years. Benign tumors were also seen most frequently in that age range, but malignant tumors occurred most frequently in older patients, aged 70-79 years (Table 2).

In the analyzed group, there was only one person younger than 20 years, and that patient had a malignant tumor - low-grade mucoepidermoid carcinoma.

Tab. I. General characteristics of the studied patients with parotid gland tumors (n=149).

TUMORS	M		F		M+F		AGE	
	N	%	N	%	N	%	MEAN	MIN-MAX
Benign	65	51,59	61	48,41	126	100	56,9	23–82
Malignant	12	52,17	11	47,83	23	100	65,5	12–85
Total	77	51,68	72	48,32	149	100	58,3	12–85

Tab. II. Diagnosis of benign and malignant parotid gland tumors in different age groups. (n=149)

AGE	TUMORS		
	BENIGN	MALIGNANT	TOTAL
<19	0	1	1
20–29	9	0	9
30–39	9	0	9
40–49	15	0	15
50–59	29	5	34
60–69	42	6	48
70–79	18	7	25
80<	4	4	8
Ogółem	126	23	149

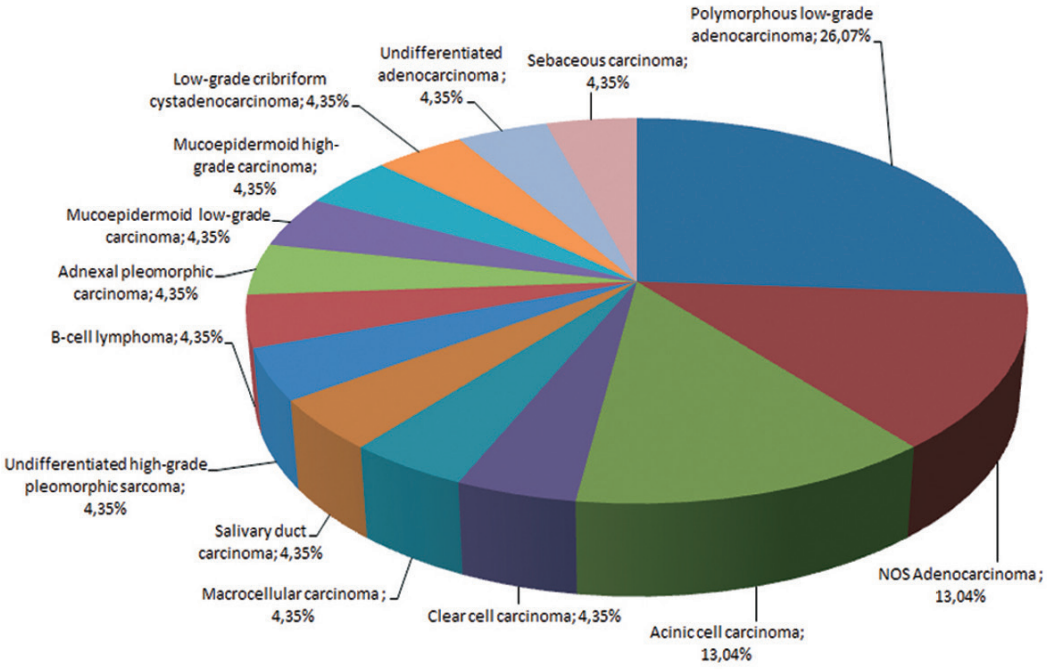

Fig. 3. Histological structure of malignant parotid gland tumors.

The majority of tumors in this study were benign (84.56%) (Figure 1).

Based on histological analysis, the tumors had various structures, both within benign and malignant tumors (Table 3 and 4, respectively). Pleomorphic adenoma and adenolymphoma accounted for the vast majority of benign tumors (93.66%), and the remaining benign tumors were rare (Figure 2).

Among 23 malignant tumors, polymorphous low-grade adenocarcinoma, NOS adenocarcinoma, and acinic cell carcinoma were most frequent, and the remaining histological types were very rare (Figure 3).

The mainstay of treatment for benign tumors was standalone surgery, and it was used in all 126 cases. Standalone surgery was also the commonest treatment approach for malignant tumors. Surgery with adjuvant radiation therapy was used in two cases, and in one case of lymphoma chemotherapy was applied.

Tab. III. Histological structure of benign parotid gland tumors. (n=126)

HISTOPATHOLOGICAL DIAGNOSIS	N	%
Pleomorphic adenoma	64	50,80
Adenolymphoma	54	42,86
Basal cell adenoma	5	3,97
Oncocytoma	1	0,79
Benign lymphoepithelial lesion	1	0,79
Kuttner's tumor	1	0,79
Total	126	100%

DISCUSSION

Based on our analysis, both benign and malignant tumors were more frequently diagnosed in men (51.59% and 51.68%, respectively). This is in line with previous studies by Kizil et al. [5] who reported a men-to-female ratio of 1.16:1. However, in the study by Oliveira et al. this ratio was 1:1.6 [9], and Gao et al. reported a balanced gender distribution [10]. The mean age for the whole group was 58.3 years, and the mean age of patients with parotid gland tumors in the study by Oliveira et al. was 45 years [9], and 47.6 years in the study by Kizil et al. Patients with benign tumors had a mean age of 56.9 years, whereas the median age for patients with malignant tumors was slightly higher – 65.5 years. This observation, i.e., an increased prevalence of malignant tumors among older patients, is in line with the study by Ki-

zil et al., although the reported mean age was lower [5]. In this study, the peak incidence was seen in patients aged 60-69 years. Benign tumors were seen in a similar age range, but malignant tumors had the highest prevalence in the age range of 70-79 years. In the study by Oliveira et al., the age range for benign and malignant tumors was 30-39 years and 50-69 years, respectively. Further analysis revealed that the majority of tumors were benign (84.56%), which is in line with studies conducted by Kizil et al., Oliveira et al., Gao et al., Afroza et al., and Martinez el al. [5,6,8,9,10]. Pleomorphic adenoma and adenolymphoma were the most frequent benign tumors in our study, accounting for 93.66% of cases, whilst the remaining types were rare. Of the 23 malignant tumors, the most common types were polymorphous low-grade adenocarcinoma (26.07%), NOS adenocarcinoma (13.04%), and acinic cell carcinoma (13.04%). In other studies, mucoepidermoid carcinoma and cystadenocarcinoma were diagnosed most frequently [2,5,6,7,8,9,10,11,12]. The mainstay of treatment for all 126 benign tumors was standalone surgery, which is in line with the current literature [4]. Standalone surgery was also used for the majority of malignant tumors, but postoperative adjuvant radiation therapy was used in two cases (8.69%)

Tab. IV. Histological structure of malignant parotid gland tumors. (n=23)

HISTOPATHOLOGICAL DIAGNOSIS	N	%
Polymorphous low-grade adenocarcinoma	6	26,07
NOS Adenocarcinoma	3	13,04
Acinic cell carcinoma	3	13,04
Clear cell carcinoma	1	4,35
Macrocellular carcinoma	1	4,35
Salivary duct carcinoma	1	4,35
Undifferentiated high-grade pleomorphic sarcoma	1	4,35
B-cell lymphoma	1	4,35
Adnexal pleomorphic carcinoma	1	4,35
Mucoepidermoid low-grade carcinoma	1	4,35
Mucoepidermoid high-grade carcinoma	1	4,35
Low-grade cribriform cystadenocarcinoma	1	4,35
Undifferentiated adenocarcinoma	1	4,35
Sebaceous carcinoma	1	4,35
Total	23	100%

CONCLUSIONS

- Among the analyzed patients, the frequency of malignant salivary gland tumors rose with age.
- Pleomorphic adenoma and adenolymphoma were the most frequent benign tumors in our study.
- Malignant tumors accounted for only 15.44% of all tumors in this study, with polymorphous low-grade adenocarcinoma being most frequent.
- Due the variability of the histopathological types of salivary gland tumors, cooperation between surgeons and pathologists is very important.
- Surgery is the mainstay of treatment for the majority of cases.

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